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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	**Applicant(s)**
Office Action Summary	10/652,672	ZIELINSKI ET AL.
	Examiner	**Art Unit**	
	Philip C. Lee	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 August 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-42</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-42</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>11/29/03</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

1.   Claims 1-42 are presented for examination.

Information Disclosure Statement

2.   The information disclosure statement submitted on 11/29/2003 was considered however

the embedded hyperlinks and/or other forms of browser-executable code in the list of other

documents in the information disclosure statement are not permitted. The embedded hyperlinks

and/or other forms of browser-executable code in the information disclosure statement will be

part of the specification of the application, which are impermissible and require deletion.

Objections

3.   Claims 1 (line 3), 3 (lines 2-3), 4 (lines 1-2), 5 (lines 2, 5, 7 and 8), 6 (lines 2-3, 4 and 6),

11 (lines 4 and 6), 12 (lines 2-4), 13 (line 2), 19 (line 3), 20 (line 3), 21 (line 2), 22 (lines 2-3), 23

(line2), 24 (lines 5-6), 25 (lines 3-4), 28 (lines 2-3), 31 (lines 2-3), 33 (line 2), 34 (lines 3, 6, 8-

9), 35 (lines 3-7) are objected to because of the following informalities or grammar errors: "the

tunnel termination devices" should be "the plurality of tunnel termination devices"; Claims 1

(line 4), 9 (line 2), 11 (line 8), 14 (line 3), 18 (line 2), 30 (line 4), 38 (lines 2-3),"the selected

tunnel termination device" should be "the one of a plurality of tunnel termination devices that is

selected"; Claim 5 (lines 5-6), 34 (lines 6-7), "the selected preference level" should be "the one

of the preference levels that is selected"; Claims 5 (line 8), 6 (lines 3, 5 and 6), 25 (line 4), 34

(line 9), 35 (lines 4-6) "the subset" should be "the subset of the plurality of tunnel termination

devices"; Claim 11 (lines 4-5 and 6), 12 (lines 2-4), "the set" should be "the set of tunnel

termination devices"; Claim 25, lines 2-3, "the preference levels" should be "the subscriber

preference levels"; Claims 40 (line 2), 41 (line 2), 42 (line 2), "LNSs" should be "the plurality of

LNSs". Appropriate correction is required.

4.   Claims 30-38 are objected to because according to MPEP 608.01, antecedent basis for the

terms appearing in the claims, while an applicant is not limited to the nomenclature used in the

application as filed, he or she should make appropriate amendment of the specification whenever

this nomenclature is departed from by amendment of the claims so as to have clear support or

antecedent basis in the specification for the new terms appearing in the claims. Applicant will be

required to make appropriate amendment to the description to provide clear support or

antecedent basis for the terms appearing in the claims provided no new matter is introduced. The

term "computer-readable medium" is lacking clear support or antecedent basis in the description

of the specification.

5.   For examination purpose, "A computer-readable medium" in claims 30-38 is interpreted

as "computer-readable media" disclosed in paragraph 30 of the specification.

Claim Rejections – 35 USC 112

6.   Claims 2-3, 11-18, 28 and 40-41 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

       a.   The following terms lack proper antecedent basis:

           i.   the respective tunnel termination device – claims 2 and 11;

           ii.   the tunneling protocol – claim 28.

       b.   Claim language in the following claims is not clearly understood:

           iii.   As per claim 40, lines 2-3, it is uncertain if "LNSs" refers to "a plurality of

L2TP Network Servers (LNSs) in claim 39, line 5 (i.e. if they are the same, then

terms such as "the" or "said" should be used).

Claim Rejections – 35 USC 101

7.   35 U.S.C. 101 reads as follows:

    Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
    any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
    requirements of this title.

8.   Claims 19-29 are rejected under 35 U.S.C. 101 because "A network device" comprising a

tunneling module (i.e., software) does not include any functional structure of a device (i.e. an

apparatus). A network device comprising software is considered as program per se, which is not

one of the categories of statutory subject matter.

Claim Rejections – 35 USC 102

9.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United
States before the invention thereof by the applicant for patent, or on an international application by another who
has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention
thereof by the applicant for patent.

10.   The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

11.   Claims 1, 7, 10, 19-20, 26, 29-30 and 36 are rejected under 35 U.S.C. 102(e) as being

anticipated by Ramankutty et al, U.S. Patent 6,917,592 (hereinafter Ramankutty).

12.   As per claim 1, Ramankutty teaches the invention as claimed comprising:

selecting one of a plurality of tunnel termination devices based on weightings (e.g., Max

number of connection, CPU usage, memory usage) associated with the tunnel termination

devices (col. 4, line 58-col. 5, line 5) (selecting LNS 110 based on weightings); and

establishing a network tunnel with the selected tunnel termination device (col. 5, lines 4-

5) (forming a tunnel between LAC 102 and LNS 110).

13.   As per claim 30, Ramankutty teaches the invention as claimed comprising instructions to

cause a processor (inherently comprised) to:

> select one of a plurality of tunnel termination devices based on weightings (e.g., Max
>
> number of connection, CPU usage, memory usage) associated with each of the plurality
>
> of tunnel termination devices (col. 4, line 58-col. 5, line 5) (selecting LNS 110 based on
>
> weightings); and
>
> establishing a network tunnel with the selected tunnel termination device (col. 5, lines 4-
>
> 5) (forming a tunnel between LAC 102 and LNS 110).

14.   As per claims 7 and 36, Ramankutty teaches the invention as claimed in claims 1 and 30

above. Ramankutty further teach wherein establishing a network tunnel comprises establishing a

network tunnel in accordance with the Layer Two Tunneling Protocol (L2TP) (col. 3, lines 41-

42).

15.   As per claim 10, Ramankutty teaches the invention as claimed in claim 1 above.

Ramankutty further teach wherein selecting one of a plurality of tunnel termination devices

comprises selecting one of a plurality of Layer Two Tunneling Protocol (L2TP) Network Servers

(LNSs) based on weightings associated with the LNSs (col. 4, line 58-col. 5, line 5), and

wherein establishing a network tunnel comprises establishing an L2TP tunnel with the selected

one of the LNSs (col. 5, lines 4-5).

16.   As per claim 19, Ramankutty teaches the invention as claimed comprising a tunneling

module (LAC) that load balances subscriber sessions across a plurality of tunnel termination

devices (LNSs 110 and 116) (col. 4, lines 36-45) based on a resource constraint associated with

the tunnel termination devices (col. 4, line 58-col. 5, line 5).

17.   As per claim 20, Ramankutty teaches the invention as claimed in claim 19 above.

Ramankutty further teach wherein the tunneling module load balances the subscriber sessions

across the plurality of tunnel termination devices based on a maximum number of subscriber

session supported by each of the tunnel termination devices (col. 4, lines 58-62).

18.   As per claim 26, Ramankutty teaches the invention as claimed in claim 19 above.

Ramankutty further teach wherein establishing a network tunnel comprises establishing

a network tunnel in accordance with the Layer Two Tunneling Protocol (L2TP) (col. 3, lines 41-

42).

19.   As per claim 29, Ramankutty teaches the invention as claimed in claim 19 above.

Ramankutty further teach wherein the network device comprises a Layer Two Tunneling

Protocol (L2TP) Access Concentrator (LAC), and the tunnel termination devices comprise L2TP

Network Servers (LNSs) (fig. 1).

Claim Rejections – 35 USC 103

20.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21.   Claims 2-6, 11-13, 16, 21-25 and 31-35 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Ramankutty in view of Sitaraman et al, U.S. Patent 7,139,276 (hereinafter

Sitaraman).

22.   As per claim 11, Ramankutty teaches the invention substantially as claimed comprising:

selecting one of the tunnel termination devices of a set based on weightings (e.g., Max number of

connection, CPU usage, memory usage) (col. 4, line 58-col. 5, line 5) (selecting LNS 110 based

on weightings); and

establishing a network tunnel with the selected tunnel termination device (col. 5, lines 4-5)

(forming a tunnel between LAC 102 and LNS 110).

23.   Ramankutty does not specifically teach calculating the weightings. Sitaraman teaches

comprising:

selecting a set of tunnel from a plurality of tunnel based on a preference level (col. 5, lines 53-64;

col. 6, lines 57-59)(selecting tunnels based on criteria of a particular remote domain (e.g., QoS

levels or bandwidth));

calculating weightings associated with the tunnel of the set based on a resource constraints for

the respective tunnel (col. 8, lines 31-42; col. 6, lines 59-62); and

selecting one of the tunnel of the set based on the calculated weightings (col. 5, lines 1-5; col. 6,

lines 20-24, 62-65).

24.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of calculating the weightings based on a resources constraint associated with the

respective tunnel would increase the efficiency of Ramankutty's system by allowing sessions to

be shared among tunnels, hence providing relatively efficient utilization of resources.

25.   As per claims 2 and 31, Ramankutty teaches the invention as claimed in claims 1 and 30

above. Ramankutty does not specifically teach calculating the weightings. Sitaraman teaches

calculating the weightings based on a resources constraint associated with the respective tunnel

(col. 8, lines 31-42).

26.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of calculating the weightings based on a resources constraint associated with the

respective tunnel would increase the efficiency of Ramankutty's system by allowing sessions to

be shared among tunnels, hence providing relatively efficient utilization of resources.

27.   As per claims 3 and 32, Ramankutty and Sitaraman teach the invention substantially as

claimed in claims 2 and 31 above. Ramankutty and Sitaraman further teach calculating the

weightings based on a maximum number of subscriber sessions supported by each of the tunnel

termination devices (see Ramankutty, col. 5, lines 64-66; see Sitaraman, col. 8, lines 31-42).

28.   As per claims 4, 23 and 33, Ramankutty teaches the invention as claimed in claims 1, 19

and 30 above. Ramankutty does not teach user input. Sitaraman teaches assigning the

weightings to the tunnel based on user input (col. 5, lines 53-55) (input received from users 440,

fig. 4).

29.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of assigning the weightings to the tunnel based on user input would increase the

efficiency of Ramankutty's system by allowing sessions to be shared among tunnels based on

user inputs, hence providing relatively efficient utilization of resources.

30.   As per claims 5 and 34, Ramankutty teaches the invention as claimed in claims 1 and 30

above. Ramankutty does not teach preference levels. Sitaraman teaches comprising:

receiving tunnel definitions that associate the tunnel with preference levels (col. 6, lines 11-13,

35-40);

selecting one of the preference levels (col. 5, lines 53-59; col. 6, lines 52-54) (selecting criteria

such as QoS levels or bandwidth);

identifying a subset of the tunnel associated with the selected preference level (col. 5, lines 59-

61; col. 6, lines 57-59);

calculating the weightings for the subset of the tunnel (col. 8, lines 36-42; col. 6, lines 59-62);

and

selecting one of the tunnel of the subset based on the calculated weightings (col. 5, lines 1-5; col.

6, lines 20-24, 62-65).

31.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of preference levels would increase the efficiency of Ramankutty's system by allowing

sessions to be shared among tunnels based on preferences, hence providing relatively efficient

utilization of resources.

32.   As per claims 6, 12 and 35, Ramankutty and Sitaraman teach the invention substantially

as claimed in claims 5, 11 and 34 above. Sitaraman further teach comprising:

determining a maximum number of subscriber sessions supported by each of the tunnel of the

subset (col. 8, lines 31-39); and

calculating the weighting associated with each of the tunnel of the subset as a function of the

maximum number of subscriber sessions supported by each of the tunnel of the subset (col. 8, lines 31-39).

33.   It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine the teachings of Ramankutty and Sitaraman for the same reason set forth in claim 5 above.

34.   As per claim 13, Ramankutty and Sitaraman teach the invention substantially as claimed in claim 12 above. Sitaraman further teach assigning the weightings to the tunnel based on user input (col. 8, lines 31-39).

35.   It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's teaching of assigning the weightings to the tunnel based on user input would increase the efficiency of Ramankutty's system by allowing sessions to be shared among tunnels based on user inputs, hence providing relatively efficient utilization of resources.

36.   As per claim 16, Ramankutty and Sitaraman teach the invention substantially as claimed in claim 11 above. Ramankutty further teach wherein establishing a network tunnel comprises establishing a network tunnel in accordance with the Layer Two Tunneling Protocol (L2TP) (col. 3, lines 41-42).

37.   As per claim 21, Ramankutty teaches the invention as claimed in claim 19 above.

Although Ramankutty teaches selects the tunnel termination devices as destinations for network

tunnels in accordance with weightings (col. 4, line 58-col. 5, line 5) (selecting LNS 110 based on

weightings), however, Ramankutty does not teach tunneling module assigns weighting.

Sitaraman teaches the tunneling module assigns weightings to the plurality of tunnel (col. 5, lines

53-55).

38.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of assigning the weightings to the tunnels increase the efficiency of Ramankutty's

system by allowing sessions to be shared among tunnels, hence providing relatively efficient

utilization of resources.

39.   As per claim 22, Ramankutty and Sitaraman teach the invention substantially as claimed

in claim 21 above. Ramankutty and Sitaraman further teach calculating the

weightings based on a maximum number of subscriber sessions supported by each of the tunnel

termination devices (see Ramankutty, col. 5, lines 64-66; see Sitaraman, col. 8, lines 31-42).

40.   As per claim 24, Ramankutty teaches the invention as claimed in claim 19 above.

Ramankutty does not teach preference levels. Sitaraman teaches an authorization manager that

generates data identifying the plurality of tunnel and associating the plurality of tunnel with

subscriber preference levels (col. 6, lines 11-13, 35-40), wherein the tunneling module load

balances the subscriber sessions across the tunnel in accordance with the associated subscriber

preference levels (col. 6, lines 40-51).

41.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of subscriber preference levels would increase the efficiency of Ramankutty's system

by allowing sessions to be shared among tunnels based on preferences, hence providing

relatively efficient utilization of resources.

42.   As per claim 25, Ramankutty teaches the invention as claimed in claim 19 above.

Ramankutty does not teach preference levels. Sitaraman teaches wherein the tunneling module

identifies a subset of the plurality of tunnels associated with a current one of the preference

levels (col. 5, lines 59-61; col. 6, lines 57-59), calculates the weightings for the subset of the

tunnel (col. 8, lines 36-42; col. 6, lines 59-62), and selects one of the tunnels of the subset based

on the calculated weightings (col. 5, lines 1-5; col. 6, lines 20-24, 62-65).

43.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Sitaraman because Sitaraman's

teaching of preference levels would increase the efficiency of Ramankutty's system by allowing

sessions to be shared among tunnels based on preferences, hence providing relatively efficient

utilization of resources.

44.   Claims 8, 27 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ramankutty in view of Loehndorf, Jr. et al, U.S. Patent 6,094,437 (hereinafter Loehndorf).

45.   As per claims 8, 27 and 37, Ramankutty teaches the invention as claimed in claims 1, 19

and 30 above. Ramankutty does not specifically teach other types of tunnels. Loehndorf teaches

comprising establishing one of a Multiprotocol Label Switching (MPLS) tunnel, a Generic

Routing Encapsulation (GRE) tunnel, and an IP Security (IPSEC) tunnel (col. 4, lines 30-35).

46.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Loehndorf because

Loehndorf's teaching of different types of tunnels would increase the functionality of

Ramankutty's system by allowing load-balancing of sessions for different types of tunnels.

47.   Claims 9, 28 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ramankutty in view of Gaddis et al, U.S. Patent 6,965,937 (hereinafter Gaddis).

48.   As per claims 9, 28 and 38, Ramankutty teaches the invention as claimed in claims 1, 19

and 30 above. Ramankutty does not teach an edge router. Gaddis teaches establishing a network

tunnel from an edge router to the selected tunnel termination device (col. 3, lines 5-8).

49.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Gaddis because Gaddis's

teaching of establishing a network tunnel from an edge router to the selected tunnel termination

device would enhance the communicating mechanism of Ramankutty's system by creating a

logical interface on a router that is used to send traffic destined for other endpoints on the

network.

50.   Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramankutty in

view of Dick et al, U.S. Patent Application Publication 2002/0172174 (hereinafter Dick).

51.   As per claim 39, Ramankutty teaches the invention substantially as claimed comprising:

        a subscriber device (100, fig. 1); and

        a Layer Two Tunneling Protocol (L2TP) Access Concentrator (LAC) (102, fig. 1), and a

        plurality of L2TP Network Servers (LNSs) (110, 116, fig. 1), wherein the LAC applies a

        weighted load-balancing process (weighted based on Max number of connections, CPU

        usage, memory usage) to select one of the LNSs and establish an L2TP tunnel associated

        with the subscriber device with the selected one of the LNSs (col. 4, lines 36-45; col. 4,

        line 58-col. 5, line 5).

52.   Ramankutty does not teach Internet Service Provider (ISP). Dick teaches ISP comprising

a Layer Two Tunneling Protocol (L2TP) Access Concentrator (LAC) (102, fig. 1), and a L2TP

Network Server (LNSs) ([0127]).

53.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty and Dick because Dick's teaching

of ISP would improve the user accessibility in Ramankutty's system by providing access to the

Internet for users via the Internet Service Provider.

54.   Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ramankutty and Sitaraman in view of Bishara, U.S. Patent 7,120,834 (hereinafter Bishara).

55.   As per claim 14, Ramankutty and Sitaraman teach the invention substantially as claimed

in claim 11 above. Although Sitaraman teaches selecting a second one of the tunnel termination

devices from the set of tunnel termination devices (col. 5, lines 59-61; col. 6, lines 57-65),

however, Ramankutty and Sitaraman do not teach fail-over. Bishara teaches determining

whether a fail-over setting is enabled upon failing to establish the network connection with the

selected device (col. 7, line 59-col. 8, line 7); and

selecting a second one of the devices from the set of devices when the fail-over option is enabled

(col. 8, lines 18-25, 40-53).

56.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty, Sitaraman and Bishara because

Bishara's teaching of failover process would increase the reliability of Ramankutty's and

Sitaraman's systems by allowing transfer of request from a failed component to another

component in order to ensure uninterrupted data flow and operability.

57.   As per claim 15, Ramankutty, Sitaraman and Bishara teach the invention substantially as

claimed in claim 14 above. Although Sitaraman teaches updating the preference level (col. 5,

lines 53-59; col. 6, lines 52-54); selecting a second set of tunnel termination devices from the

plurality of tunnel termination devices based on the updated preference level (col. 5, lines 59-61;

col. 6, lines 57-65);

calculating weightings associated with each of the tunnel termination devices of the second set

based on resource constraints for the respective tunnel termination device (col. 8, lines 36-42;

col. 6, lines 59-62); and

selecting one of the tunnel termination devices of the second set based on the calculated

weightings (col. 5, lines 1-5; col. 6, lines 20-24, 62-66), however, Ramankutty and Sitaraman do

not teach fail-over. Bishara teaches updating upon failing to establish connection and when the

fail-over option is disabled (col. 7, line 59-col. 8, line 17).

58.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty, Sitaraman and Bishara for the

same reason set forth in claim 14 above.

59.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramankutty and

Sitaraman in view of Loehndorf.

60.   As per claim 17, Ramankutty and Sitaraman teach the invention substantially as claimed

in claim 11 above. Ramankutty and Sitaraman do not specifically teach other types of tunnels.

Loehndorf teaches comprising establishing one of a Multiprotocol Label Switching (MPLS)

tunnel, a Generic Routing Encapsulation (GRE) tunnel, and an IP Security (IPSEC) tunnel (col.

4, lines 30-35).

61.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty, Sitaraman and Loehndorf because

Loehndorf's teaching of different types of tunnels would increase the functionality of

Ramankutty's and Sitaraman's systems by allowing load-balancing of sessions for different

types of tunnels.

62.   Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramankutty and

Sitaraman in view of Gaddis.

63.   As per claim 18, Ramankutty and Sitaraman teach the invention substantially as claimed

in claim 11 above. Ramankutty and Sitaraman do not teach an edge router. Gaddis teaches

establishing a network tunnel from an edge router to the selected tunnel termination device (col.

3, lines 5-8).

64.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty, Sitaraman and Gaddis because

Gaddis's teaching of establishing a network tunnel from an edge router to the selected tunnel

termination device would enhance the communicating mechanism of Ramankutty's and

Sitaraman's systems by creating a logical interface on a router that is used to send traffic

destined for other endpoints on the network.

65.   Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramankutty

and Dick in view of Sitaraman.

66.   As per claim 40, Ramankutty and Dick teach the invention substantially as claimed in

claim 39 above. Ramankutty and Dick do not specifically teach calculating the weightings.

Sitaraman teaches calculating the weightings based on a resources constraint associated with the

respective tunnel (col. 8, lines 31-42).

67.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty, Dick and Sitaraman because

Sitaraman's teaching of calculating the weightings based on a resources constraint associated

with the respective tunnel would increase the efficiency of Ramankutty's and Dick's systems by

allowing sessions to be shared among tunnels, hence providing relatively efficient utilization of

resources.

68.   As per claim 41, Ramankutty, Dick and Sitaraman teach the invention substantially as

claimed in claim 40 above. Ramankutty and Sitaraman further teach calculates the weightings

based on a maximum number of subscriber sessions supported by each of the LNSs (see

Ramankutty, col. 5, lines 64-66; see Sitaraman, col. 8, lines 31-42).

69.   As per claim 42, Ramankutty and Dick teach the invention substantially as claimed in

claim 39 above. Ramankutty and Dick do not teach user input. Sitaraman teaches assigning the

weightings based on user input (col. 5, lines 53-55) (input received from users 440, fig. 4).

70.   It would have been obvious to one having ordinary skill in the art at the time of the

invention was made to combine the teachings of Ramankutty, Dick and Sitaraman because

Sitaraman's teaching of assigning the weightings based on user input would increase the

efficiency of Ramankutty's and Dick's systems by allowing sessions to be shared among tunnels

based on user inputs, hence providing relatively efficient utilization of resources.

CONCLUSION

71.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

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72.   A shortened statutory period for reply to this Office action is set to expire THREE

MONTHS from the mailing date of this action. Any inquiry concerning this communication or

earlier communications from the examiner should be directed to Philip C Lee whose telephone

number is (571)272-3967. The examiner can normally be reached on 8 AM TO 5:30 PM

Monday to Thursday and every other Friday. If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-

3913. The fax phone number for the organization where this application or proceeding is

assigned is 571-273-8300. Information regarding the status of an application may be obtained

from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more

information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions

on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-

9197 (toll-free).

P.L.